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THE

ELECTRIC TELEGRAPH.

SUBSTANCE OF THE ARGUMENT OF

S. P. CHASE

BEFORE THE

Supreme Court of the United States,

FOR THE APPELLANTS IN THE CASE OF

H. O'REILLY, AND OTHERS

vs.

S. F. B. MORSE, AND OTHERS,

ON APPEAL FROM THE CIRCUIT COURT FOR THE DISTRICT OF KENTUCKY.

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COURIER, FARGO AND BOOKS OFFICES.
1856.

success, the experiment of transmission through wires, two miles in length, *supported on sticks or poles, the earth being used for the return of the current.* The next year Dr. Franklin successfully repeated on the Schuylkill the experiment of Dr. Watson on the Thames.

It is true that the electricity used in these and many similar experiments was derived from the common electrical machine, and not from the modern galvanic battery. But it is also true, that electricity thus generated, was identical in most respects, with galvanic electricity; was exposed to instantaneous transmission to a distant point; was capable of being used to make signals there; and was, in fact, transmitted in the identical mode now adopted by Morse for the transmission of electric currents.

The world had long sought for practicable modes of rapidly communicating intelligence between remote places. Beacons blazing from lofty summits, and semaphores displaying signals in conspicuous positions, had hitherto been the only means employed for that purpose. It now seemed possible, by means of this subtile element, traversing, with inconceivable velocity, indefinitely extended circuits, and revealing its presence by sparks, by attraction and repulsion of balls, by illumination of imperfect conductors, at any point, however distant, according to the will of the operator, to realize the perfection of telegraphic communication.

Various plans of electric telegraphs were speedily proposed before the close of the 18th century. Lomond, in France, Reizen, in Germany, Salva and Betancourt, in Spain, had established electric communications between places, more or less remote, using the various effects of the current at the receiving station, as signs of letters, words, or sentences. Ronald's Electric Telegraph, invented in 1816, was another very ingenious application of the same principle.

None of these projects, however, were eventually successful. The want of sufficient and constant batteries or suppliers of the electric current and the liability of electricity, generated by machines, to dissipation in the atmosphere, and to diversion

from the circuit by other influences and accidents, proved insuperable obstacles.

The year 1800 is distinguished in scientific annals, by the invention of the voltaic battery. A simple column, composed of successive series of silver coins and discs of zinc, and wet card, of equal circumference, each series being arranged in a sequence of silver, zinc and card, constituted the first battery. The first connection of its poles or the first galvanic or voltaic circuit was formed by touching the uppermost silver coin with a wet finger of one hand, and the lowermost disc of card with a finger of the other.

It is obvious that the circuit might be completed by any conducting substance, and in fact wire, as the most convenient conductor has been always employed for the purpose.

In this battery we find the first element of the modern electric telegraph.

It had no sooner been invented than ingenuity busied itself with schemes of telegraphs, to be operated by its means. Sömmering, in 1809, invented one, the signs of which were made by the decomposition of water, through the action of the electric current, at the receiving station. In 1816, Professor Cox, of Philedelphia, proposed another telegraph on the same principle, suggesting in addition to the signs of Sömmering, signs made by the decomposition of metallic salts.

Still, however, no practically valuable telegraph rewarded the labors of invention. The batteries were insufficient, the electric current was too feeble; the signs made, too doubtful and evanescent, and the conducting apparatus too complex and expensive.

About this period, in 1819 and 1820, the investigations of Oersted, Ampere, Arago and Davy, established the facts that electric currents, generated by the voltaic battery are magnetic; and that these currents, passing around pieces or bars of soft iron, induce or develop magnetism in them; which magnetism disappears instantaneously whenever the current ceases to pass round them.

Ampere now suggested in 1820, a form of electric telegraph, which, improved, simplified and embodied by the in-

ventive genius of Professor Wheatstone, is actually in extensive use at this day. "As many MAGNETIC NEEDLES," he says, "as there are letters in the alphabet may be put in action by conductors; communicating with the battery by meansof KEYS, which may be pressed down at pleasure, and thus afford the means of *a telegraphic correspondence which would surmount all distance and be as prompt as speech to transmit thought.*"

Sturgeon was the next investigator, whose researches contributed essentially to prepare the way for the electric telegraph. In 1825, he made the first electro-magnet, by bending a piece of thick iron wire in the form of a horseshoe, and winding spirally around it a long copper wire with wide spaces between the turns, so that no part of the wire should touch any other part. By connecting the two ends of the copper wire, with wires proceeding from the opposite poles of a battery, a current of electricity was made to pass round the horseshoe wire which instantly became magnetic. This was the first electro-magnet. Its magnetic power was sufficient to raise and hold suspended very considerable weights.

It was now certain that mechanical results could be produced at any distance from the operating station, to which the electric current could be transmitted. This power once obtained, could be applied at the distant place with as much facility as steam or any other motive power could be applied at the place of generation or production.

Power capable of control at the operating station in its action at any distance, had been the great desideratum in telegraphing. Its application, when obtained, involved no serious difficulty. This power seemed now to be secured.

But the experiments of Barlow, instituted in the same year, 1825, upon the transmissibility of electric currents through wires, extinguished for the time those hopes which Sturgeon's results were calculated to excite. He found that the power of the galvanic current to develop magnetism, diminished rapidly in propotrion to the distance from the battery. At the distance of two hundred feet he found the dminution so great as to convince him that an available electro-magnetic telegraph was impossible. "The publication of Barlow's results," says Profes-

sor HENRY in his deposition, "put at rest, for a time, all attempts to construct an electro-magnetic telegraph."

It was reserved for a countryman of our own, distinguished by scientific attainments and personal worth, to reverse the conclusions of Barlow, by demonstrating the practicability of transmitting available currents to distant places, through long circuits, and thus establishing the feasibility of the telegraph. After repeated experiments, Professor HENRY, by means of an intensity battery of his own arrangement, succeeded in sending the electric current through a long circuit, *without any perceptible diminution of magnetic power*. His experiments and their results were made public in 1831, in Silliman's Journal, and attracted great attention in both hemispheres: In the same publication he announeed the applicability of his discovery to the project of the telegraph. In his lectures from the chair of Natural Philosophy, in Princeton College in 1833, and in every subsequent year during his connection with the institution, he mentioned the project of the electro-magnetic telegraph, and explained how the electro-magnet might be used to produce mechanical effects at a distance adequate to making signals of various kinds."*

Let us now see what preparation had at this time been made for a telegraph? What had been accomplished?

a The galvanic, or voltaic battery had been invented and improved; thus supplying a generator of electricity in sufficient quantity and energy.

b. The mode of connecting the poles of the battery by a wire circuit, whether long or short, was known.

c. The fact that, during this connexion, the electricity generated by the battery, was transmitted instantaneously through the entire circuit, and that at the instant of breaking the circuit, by severing the wire or otherwise interrupting the connexion, this electricity disappeared, was also known.

d. Various convenient modes of breaking and closing the circuit, and thus interrupting and renewing the current, by means of a finger key and otherwise, were also known.

* *Henry's Deposition Record*, 421.

e. The fact that the electric current transmitted through thin paper, moistened by a solution of mineral salts, would leave a mark upon the paper, was also known.

f. The fact that the electric current, transmitted through insulated wire, composing part of a circuit and wound round a soft iron bar, would excite magnetism in the bar, which magnetism would instantly disappear on breaking the circuit, was established. This discovery gave the electro-magnet to science and the arts.

g. The fact that, by the use of electro-magnetism, thus developed any mechanical effects, capable of being produced by any ordinary motive power of like energy, could be wrought at any distance from the operating station, to which the electric current could be transmitted, was also established.

h. The fact that the electric current passing through wire, surrounding or placed in certain relations to a needle, would, by its magnetic action, powerfully deflect it, was also established.

i. And, finally, it was established that the electric current, generated by a proper battery, could be sent through a circuit of indefinite extent, without any sensible diminution of its power to excite an electro-magnet, or to deflect a needle placed at the remotest point from the operating station.

Is anything needed, beyond this simple recital, to demonstrate that the Magnetic Telegraph was now not possible merely, but inevitable? That it was not so truly possible that practically useful applications of these established facts and principles to the transmission of intelligence to distant points should be made, as impossible that such applications should not be made?

It seems to be a part of the great law of progress impressed upon society, that, whenever the advance of the race requires a new development and application of material power, science shall supply the development and discover the principles of the application, and that Invention shall ascertain the processes and means by which the revelations of Science are made practi-

cally useful to mankind. Civilisation, Science, and Invention march together.

The introduction of Steam, as a motive power upon the water and upon the land, was prepared by many antecedent discoveries and inventions. So also the introduction of electro-magnetism, as a motive power for the instantaneous manifestation by signs at one place of ideas conceived at another, was preceded by many preparatory discoveries and inventions.

I have said that the state of science and invention, when Professor Henry had demonstrated the practicability of producing mechanical effects at great distances by means of electric currents and the electro-magnet, made the electric telegraph not possible merely, but inevitable. I may very well add, that not only was the telegraph inevitable, but various forms of the telegraph were, also, inevitable. One inventor would naturally avail himself of the deflection of the needle; another of the property of the electric current to decompose salts; another of the mechanical power of the electro-magnet. The history of telegraphic invention embodied in the record, and the works made part of it, and in our national public documents prove that what might have been naturally expected actually happened.

No sooner had Professor Henry's discoveries been announced to the world than Gauss, and Weber, and Steinheil, in Germany, Morse in the United States, Cooke and Wheatstone in England, and others of less note elsewhere, busied themselves in devising and constructing telegraphs upon various plans, but all agreeing in the use of the electric current to produce, by its magnetic properties, mechanical effects at a distance. The signs of Gauss and Weber's telegraph were made by the simple deflections of a needle, a single deflection to the right representing *a*, and a single deflection to the left, *b;* the other letters and certain words and sentences being represented by deflections variously combined. This telegraph was put in operation in 1833 or 1834. In Steinheil's telegraph, which was in operation previous to July, 1837, and had been adopted by the Bavarian Government, according to Mr. Morse, when he visited Europe in 1838, the regulated deflec-

tions of a needle or magnetic bar of proper size and shape were employed either to produce sounds by striking bells, or to record signs by marking with ink paper moved before the bar by a roller. Steinheil first discovered that the return wire could be dispensed with, and that the ground could be used to complete a circuit of galvanic electricity. I have already stated that Watson, in 1747, had discovered the same facts in respect to machine electricity. In Cooke and Wheatstone's telegraph, patented in 1837, the deflections of the needle were used to point to words and sentences arranged upon a disc or dial. Mr. Morse found this telegraph, also, in operation when he visited Europe in 1838. In Morse's telegraph, patented in 1840, and first put in operation in 1845, the electro-magnet was used in connection with other apparatus to mark or indent paper. The indentations thus made were used as representatives of letters. Subsequently, in 1846, Bain nvented a telegraph in which the electric current was made to pass through chemically prepared paper, and make marks by simple chemical action without the use of electro-magnetism at all. The marks thus made were employed as representatives of letters, words or sentences. About the same time, House perfected the most ingenious telegraph hitherto devised, by means of which plain Roman letters could be printed at any distance from the operating station. This telegraph was patented in 1848. Bain received an American patent for his invention in 1849.

I have now traced, although in merest outline, the progress of telegraphic invention and discovery to the date of Morse's researches. I have also grouped, in a single but most imperfect view, the results obtained by him and by various cotemporary inventors.

2. I now proceed to the inquiry "What did Morse actually invent?"

A general answer may be given in a single sentence. He invented the first practically useful electro-magnetic *marking* telegraph. The evidence in this cause, I freely admit, must satisfy the Court that though his patent and the practical ap-

plication of his invention were subsequent in date to some foreign patents and to the actual construction of some foreign telegraphs, still his was the first practically useful marking telegraph. For that telegraph, beyond a doubt, he was entitled to a patent. It was a very useful invention. It reflects distinguished honor upon the name of the inventor. It gives me pleasure, now and here, as it has given me pleasure, heretofore and elsewhere, to bear unequivocal testimony to its merit and his merit. More fortunate than most inventors, I trust he may long enjoy the solid rewards, as well as the less substantial, but, to a generous mind, more gratifying distinctions, which his happy conception and well-directed and persevering industry have secured for him.

But justice to MORSE does not require injustice to his fellow laborers in the same field of invention. Others have invented telegraphs not less useful and not less ingenious than his own. Like him, they have obtained patents for the telegraphs invented by them. To the full extent of their just claims they are as much entitled to protection as himself.

It is necessary, therefore, to define the precise limits of the concession that Morse invented the first practically useful electro-magnetic *marking* telegraph. He did not invent the art of telegraphing by electro-magnetism. He did not invent the battery; nor the circuit of wire, or wire and earth; nor the electro-magnet. He did not discover the transmissibility of the electric current through a long circuit. He did not invent the combination of the battery and its circuit with an electro-magnet, or electro-magnets placed in any part of it so as to move levers or soft iron bars suspended near their poles and thus produce mechanical results at a distance. He did not invent the process of marking paper or other material, moved on a roller or cylinder, by a marker operated by mechanical power. Morse attached a marker to the armature of the magnet. He brought the paper and its revolving cylinder within the stroke of the marker. He adopted a contrivance for withdrawing the marker from contact with the paper at the instant of the cessation of the magnetic impulse. The combination of these contrivances with the known means

of operation from the distant station enabled him to produce marks at a distance, and constituted the essence of his invention.

With the permission of the Court, I will read a few extracts from the elaborate opinion of Mr. Justice WOODBURY, in the case of SMITH *v.* DOWNING, expressing the convictions of that learned Judge, in respect to the extent of Morse's actual invention. On page seven of the printed opinion, he says, "he (Morse) came into the world *too late* for claiming *much* as truly new." At page eighteen, he further says, "as before explained he must not be considered to have claimed the invention of *the general principle or art of telegraphing, by electro-magnetism, nor could he, as already shown, have protected it if he had.* But all he clearly claimed was, 'a method' of doing it: an improvement in doing it—and these he has a right to protect, and these only. They were a pin to mark, or trace in the end of his lever or needle; a happy thought, but the movement of the paper on a roller was almost as necessary to receive marks in succession, and his alphabet to be thus applied and used, was the crowning act of his invention."

On page twenty-seven he also says:—

"The lever, of which so much has been said, seems only the old needle depressed at one end by the magnet, and of course elevated at the other till the circuit is broken; and by putting a pin or pen in the last end, a dot or stroke is made on the paper rolling above or below, and the stenographic signs are then recorded."

On the same page he further says:—

"To be sure he (House), uses also the power of electro-magnetism, but Morse did not invent that power or its employment in telegraphing."

Before leaving this branch of the case, I beg leave to invite attention to Doctor Jackson's participation in the invention of the electro-magnetic telegraph. Dr. Jackson and Professor Morse met, for the first time, as fellow passengers, homeward bound, on board the packet ship Sully, in 1832. Morse was a painter of considerable reputation in his art. Jackson had cultivated the sciences. Morse was unacquainted with electricity and electro-magnetism. Jackson was familiar with the results

of European research on both subjects; was fresh from the lectures of Pouillet on electro-magnetism at the Sorbonne; and had in his possession an excellent electro-magnet, and two small galvanic batteries for putting it in action. Morse admits that his first idea of a telegraph was conceived during a conversation among the passengers on the recent discoveries in electro-magnetism, and was suggested by observations of Jackson upon the length of wire in the coil of the magnet, and the instantaneous transmissibility of the electric current through its entire extent. Jackson testifies explicitly that he proceeded at this time in answer to an inquiry by Morse whether intelligence could not be transmitted by this means, to affirm the possibility of it, and to describe various modes in which it could be done, one of which was by impressions on paper by means of a lever attached to the armature of an electro-magnet, and operated by means of it. Jackson further testifies that during the voyage he made further practical suggestions to Morse, who availed himself of them; and that immediately after his return, he mentioned the project of the telegraph to various persons, and, in 1834, actually tried the experiment of marking with an electro-magnet in the mode which he had suggested. Jackson is confirmed, in important respects, by several witnesses, especially by Messrs. Bigelow, C. Alger, F. Alger, Tracy, and Fisher. These witnesses stand uncontradicted. Taken together, I submit that they establish the fact, that Jackson first suggested the general plan of Morse's telegraph, though the credit of perfecting the invention, and applying it to a practical purpose, and bringing it into useful operation, and, consequently, the right to a patent for it must be conceded to Morse. I ask the attention of the Court to the depositions of the witnesses I have named.

I have now said all that I deem essential on the state of telegraphic invention and discovery at the time Morse directed his attention to the subject. I have endeavored to show what had been done by others; what was left to be done to perfect a practical marking telegraph, and what Morse did.

3. I come now to consider the third question bearing on the validity of the patent of 1840, re-issued in 1848: namely,

what does this patent purport to cover? What exclusive rights does Morse claim for himself under it?

Mr. Justice WOODBURY, in the case already referred to, expressed the opinion that, taking the whole patent together, Morse must be understood as claiming only the use of electro-magnetism "in the *form of his application, according to his machinery, and in the modes he had described.*" But it must be remembered that the copy of the patent, which was then before the Court, was misprinted. In that copy, the eighth claim asserted the right of Morse to the use of electro-magnetism, "for marking or printing intelligible characters, signs OF letters." In the correctly printed copy, now before this Court, the claim is broader. It is for the "use of the current for marking or printing intelligible characters, signs OR letters.* This claim, in this extent, was never brought to the notice of Judge WOODBURY.

I shall, therefore, examine this question of the true construction and import of the various claims of this patent as a new one. And I beg that it may be borne in mind that the patent of 1840, as originally issued, was a patent for a machine and a system of signs in combination with it,† or which is the same thing, for "the process of recording or marking signs of intelligence," through the agency of electro-magnetism, and by means of certain devised machinery. What he actually invented was a machine operated by electro-magnetism for making marks, which, like all other marks, were capable of being used as representatives of ideas. The process of making these marks or signs, was nothing more nor less, than the operation of the machine. The machine was worked by electro-magnetism, precisely as any steam machine is worked by that agent: being set in motion when the current was "let on," and ceasing to act when the current was "shut off." That mechanical effects could be produced at any desired distance was known;

* Mr. GIFFORD, of counsel for Morse, here interposed and stated that the error occurred by printing from an incorrect copy. Mr. CHASE disclaimed any imputation of improper conduct to the patentee. It appeared from the conversation of counsel, that the error occurred in recording the patent in the patent office, from which record the copy used in the Boston Case was taken, while the copy used in this case was from the original patent.

† Record, 53.

and nothing was more common than to mark, by various processes, signs of intelligence. The telegraph then was a new application of a known agency to produce known effects. It was for the machine or process, by which this new application was effected—for the simple, convenient and useful marking or recording apparatus, and for the complex, inconvenient, and subsequently discarded apparatus, for breaking and connecting the circuit, devised by him, that Morse obtained his first patent.

But, in his re-issued patent, he greatly enlarges his pretensions.

The first claim of his patent, as re-issued in 1848, asserts his title as inventor and improver to the "use of the *motive power of magnetism, when developed* by the action of such (i.e. galvanic) current or currents substantially, as set forth in the, foregoing description of the first principal part of my invention as means of operating or giving motion to machinery which may be used to imprint signals upon paper or other suitable materials, or to produce sounds for the purpose of telegraphic communication at any distance."

In the same paragraph he expressly declares that he "does not claim the use of the galvanic current or currents *for the purpose of telegraphic communication generally.*" He admits that *the galvanic current had been used prior to his invention to deflect bars or needles*, and thus produce signs at a distance; but insists that the currents thus employed "*had no power* OR *were not* applied to record the signs"—(it was necessary to say "or," else Steinheil's Recording Telegraph would disprove the assertion.) He also admits that there were *various modes of producing motions by electro-magnetism*, but none of them had been applied to *actuate printing or recording machinery*. He, therefore, "*characterizes*" his "invention as the *first recording or printing telegraph by means of electro-magnetism*," and declares that the application of electro-magnetism to actuate or give motion to printing or recording machinery is "the CHIEF POINT of his invention and improvement."

He disclaims the exclusive right to use electro-magnetism to deflect bars or needles and thus produce visible signs of intel-

ligence without marking. But he claims the exclusive use of magnetism, "*when developed*" in the mode described, for printing or recording signals. It is not *the use, in the mode described*, that he claims, but the *general* use, for marking signals, of the power *when developed* in the mode described. He means to leave no doubt as to the nature of this claim, for he specifies the mode of development as that which is set forth in the "description of the *first principal part*" of his invention. That description is confined exclusively to the battery, the circuit of conductors, the contrivance for breaking and closing the circuit, and the electro-magnet. It stops at the point of the development of the power in the electro-magnet. The register, by means of which the power is applied to marking, is described as "the *second principal part*" of his invention.

This claim, then, reduced to its simplest language, is for the "use of the motive power of magnetism, when developed" by means of the battery, circuit, key, and electro-magnet for imprinting signals or producing sounds.

I pass for the present, without observation, the second, third, fourth, sixth, and seventh claims. They are all for machinery or combinations of machinery, or for effects in combination with the machinery producing them.

The third claim is for the "system of signs, consisting of dots and spaces, and dots, spaces, and horizontal lines, for numerals, letters, words and sentences, substantially as herein set forth and illustrated, for telegraphic purposes."

The eighth claim is the most remarkable of all: "*I do not propose to limit myself*," he says, "to the specific machinery or parts of machinery described in the foregoing specifications or claims; *the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed*, for *marking* or *printing* intelligible *characters, signs*, or *letters*, at any distances; being a new application of that power, of which I claim to be the first inventor or discoverer."

This claim, taken in connection with his disclaimers, may be thus stated: "I make no pretence to the discovery of the motive power of electro-magnetism. I was by no means the

first to demonstrate the applicability of that power to the production of any mechanical results which its force is adequate to; but I have invented one set of machinery, and described one process for the application of that power to marking, by means of an electro-magnet, dots and lines, with spaces between; I have affixed certain conventional significations to these dots and lines, whereby they can be made available as representatives of letters or words; I have specified the machinery and process by which I have accomplished this; and I now claim the exclusive right to the use of this power, however developed, whether by means of an electro-magnet or without any electro-magnet, for marking, by whatever machinery, or whatever process, symbolic representations of letters and words, or for printing plain letters themselves. No machine can be made, no process can be devised, by which letters are printed, or marks made, by the motive power of the electric current, for telegraphic purposes—however distinct the machine or process from mine—without infringing my rights." This is the eighth claim. *And yet Morse invented no new art, discovered no new principle, and the body of the patent is expressly confined to an "improvement" on previously invented electric telegraphs!*

Can these claims be sustained?

Let it be remembered, that as the patent law now stands, the public has no protection against unjust monopolies, under the name of patent rights, except in the just determination of courts to sanction, in suits for infringement or injunction, no claim which is not plainly warranted by the law. There is no mode in which the patent itself can be reached by *scire facias;* none in which a judgment of avoidance canbe obtained. Patentees are permitted to disclaim whenever they please; and reissues are allowed for modified privileges whenever required. It is even claimed, by our learned opponents, that if this court should be of opinion, in this case, that certain claims in the patent are void for excess, still the appellees may have a decree on the claims to which no objection is taken. Under these circumstances, there can be no ground whatever for construing away the obvious import of language in order to sustain a particular claim.

I repeat, then, can the three claims I have now especially brought to the notice of the court, be sustained?

One fundamental rule applicable to this question is, that every patentee must be confined to the method, process, machine, or manufacture which he has described in his specification. He can claim nothing which he has not described. That which cannot be described, cannot be patented.

Another fundamental rule is, that there can be no patent for an effect only, or for an art in the abstract, or for a principle. Theories are not patentable.

Let me consider the second proposition first:

Without doubt, an art can be patented. The statute says so expressly. But what sort of an art? Reason tells us, and the books tell us, it must be an art reduced to practice and embodied in a recognizable form. (1) Abstract art is theoretical skill. Art in practice is skill applied in material forms, or by mechanical means, in conformity with theory. It is a process, a method, a system. I use these words as equivalents. When our statute declared an art patentable, it introduced no new law. Whatever can be patented in the United States as an art, can be patented in England as a process. But in neither country can there be a patent for any other than a devised, specified, and embodied art or process. There can be no patent for an art generally in all its branches, to one who has shown but a single mode of exercising it. That would be a patent for an art in the abstract.

For example—The first inventor of the process or art of measuring gas by the meter could not have a patent for the art of measuring gas generally, because he had devised and shown one mode of doing it.

Nor, could the inventor of the art or process of planing boards by machinery obtain a valid patent for that art generally, but only for his specified method of doing so.

In both cases, however, the patentee for the process is entitled to the benefit of the principle or spirit or character of his invention. No person, adopting mere variations in detail, but using the substance of the invention could be protected against

(1) Curtis, § 2.

the penalties for infringement. But the patent must be for the *specified and described method or process.* Two of the learned counsel for the appellees, Messrs. Harding and Campbell, say in their brief, p. 8: "If Morse was the first to discover that the power of electro-magnetism could be used for the purpose of recording *telegraphic* SIGNS, *and devised one practical mode* for using it, he may, by a general claim, secure to himself *the right of so applying it*, as well as the particular devices by which he did so." This is not in accordance with the view of the other counsel for the appellees, Mr. Gifford, who argued that Morse's claims, rightly construed, were for a process to be exercised by particular means and in a particular manner. It will be observed moreover that even Messrs. Campbell and Harding do not, in their formal printed proposition, claim the exclusive use of electro-magnetism to record *letters.* The reason for their avoiding to make this claim in the above proposition is, that they could not assert that Morse had "devised one practical mode" of obtaining that result.

All the considered cases, all the reliable authorities, seem to me, when fairly analyzed, to support the positions I maintain.

I will first examine the cases cited on the other side. The first is *Jupe* v. *Pratt*, *Web. Pat. Cas.* 144. In this case, the plaintiff had planned an expanding table, and had procured a mechanic to devise machinery by which the expansion could be effected. He claimed only the principle of the expansion, and not the means or process. The court expressed the opinion that the patent could not be sustained, though the case turned finally upon a point of pleading.

So far the authority is against our friends. But in this case occurs the remark of Baron Alderson, cited as an authority by them. It was a remark in conversation with counsel, of no authority at all. It is quite plain, also, that Baron Alderson, when he spoke of "a patent for a principle coupled with a mode of carrying it into effect," intended also a patent for a principle embodied in a machine or process. This construction reconciles the learned Judge with himself, and with the current of authority. Upon the construction of the gentlemen on the other side, the remark would be unwarranted by reason or precedent.

We are next referred to Forsyth's Patent, and the notes upon it. *Web. Pat Cases*, 96, 97. This was a patent for a process of discharging fire-arms by the use of a detonating powder. It is stated in one of the notes referred to, that in a case upon this patent, the alleged doctrine of Alderson's dictum in *Jupe* v. *Pratt*, was recognized and affirmed; but on turning to page 128, to which the annotator refers, we find absolutely nothing to sustain the note. We find only a statement by counsel, in argument, of an observation by Tenterden, that some person had counterfeited Forsyth's mode of using the detonating powder, and had thus infringed his patent.

The next authority relied on by the appelees, is *Neilson* v. *Harford*, *Web. Pat. Cases*, 309. This case by no means supports the broad doctrine of my learned friend (Mr. CAMPBELL). Quite the reverse.

The final judgment of the Court proceeded upon the express ground that the specification did not claim a principle, but a described and embodied process. "It is very difficult," said the Court, "to distinguish it from the specification of a patent for a principle, and *this* at first created in the minds of some of the Court *much difficulty;* but, after full consideration, we think that the plaintiff *does not merely claim a principle*, but *a machine embodying a principle*, and a very valuable one. We think the CASE MUST BE CONSIDERED AS IF, THE PRINCIPLE BEING WELL KNOWN, the plaintiff had first invented *a mode of applying it by a mechanical apparatus to furnaces;* and his invention then consists in this, *by interposing a receptacle for heated air between the blowing apparatus and the furnace.*" These citations are sufficient to show that this much misunderstood case of *Neilson* v. *Harford*, far from sustaining the doctrine of our opponents, supports, directly and powerfully, the doctrine for which we contend.

The Court after taking time to consider, held that Neilson's discovery of the fact that hot air was better than cold in a blast furnace, could not be made the subject of a patent, directly or indirectly.

The case was considered by the Court as if that principle had been well known before the patent was issued. The patent was on its face for a machine, and therefore was good: the

rest was a question of fact for the Jury; and the question whether the Judge had properly charged the Jury, was not before the Court—the motion for a new trial not being on the ground of misdirection. The remarks of the Judges to Counsel in the course of the argument, must be taken subject to the final and deliberate decision of the Court.

A similar action was tried in Scotland on the patent there. *Web. P. C.* 673. An appeal from the judgment in favor of the plaintiff, was taken to the House of Lords for the purpose, amongst other things, of testing the accuracy of the Judge's charge to the jury. See page 674. But it was held by the House of Lords that the form of the pleadings precluded the discussion of the question whether the patent was for a principle. (Page, 701).

The counsel for the appellees are hardly more fortunate in the next case which they cite. *Park*, v. *Little*, 3 *Wash.* 196.

The suit was for an infringement of a patent for alarm bells for fire engines. In his charge to the jury, Judge Washington treats the patent as one for the use of bells, affixed to fire engines in a described mode, so as to be rung by the action of the engines when in motion. There is no intimation that the patent is for the application of bells to fire engines in every mode. On the contrary, the learned Judge expressly left it to the jury to say whether the application of bells to engines used by defendants, was an improvement on the plaintiff's application in "principle or form," telling them, "If the former, it is no invasion of the plaintiff's privilege, if the latter it is." The verdict was for the defendants. The plaintiff was the first to apply bells to fire engines. He claimed every mode of application. He was allowed only his own. The question was between two methods of application, and the jury found them distinct in principle. The case, therefore, is no authority for the doctrine it is cited to sustain.

The next case cited by the appellees is that of *Walton* v. *Potter*, *Web. Pat. Cases*, 586. In that case, however, there was no controversy on the question whether a patent for an art or principle could be susta[illegible]t was assumed on both sides, that such a patent wo[illegible]' the only question discussed, was wheth[illegible]s not for an art or

principle, and therefore invalid. The pleadings did not allow even this question to be raised; and it was not decided. In a subsequent case, however, upon the same patent, Mr. Justice Cresswell held that the subject of the patent was the combination of the card teeth with an elastic back, or fillet of caoutchouc for the production of an improved card. This, it was held, was such an embodiment of the principle of adopting caoutchouc, a flexible substance and very suitable for the purpose, as a back or fillet for the card, as would sustain the patent. Taken in connection with its subject matter, I see no objection to the law, as stated by C. J. Tindal, in the original case, and quoted on the other side. It was sound doctrine as applied. It does not touch the case of the appellees here.

The counsel for the appellees, also, seem to rely on the cases of *Crane* v. *Price*, *Web. Pat. Cases*, 375, *and Minter* v. *Wells*, *Web. Pat. Cases*, 134. It does not seem necessary to dwell on these cases. The patent in the first case was for the combination of heated air with anthracite coal, for making iron. Itwas no patent for a principle; but for a combination. The patent in the second case, was for the application of a self-adjusting leverage to the back and seat of a chair. This was not a patent for a principle, but for a machine constructed upon a principle. Lord Lyndhurst, C.B., said: "The application of the self-adjusting leverage producing the effect, *constitutes the machine;* and he *claims that machine*, and the right to make that machine by the application of a self-adjusting leverage producing a particular effect."

Nor is it necessary to advert particularly to the late case (1850–1) of the *Electric Telegraph Company* v. *Brett and Little*, 4 *Eng. Law. and Eq. Rep.* It certainly asserts no doctrine inconsistent with that of the earlier cases. It is, perhaps, worth while to observe, however, that this case arose upon Wheatstone's patent for an Electric Telegraph making signs by the deflection of a needle or indicator by means of electromagnetism; that this patent was sealed June 12, 1837; and dated 12 December, 1837; and that the case shows that this telegraph is most extensively employed in England.

After this review of the authorities, I think I may safely affirm that there is no English case which sustains the doctrine

of my learned friend (Mr. CAMPBELL.) Neilson's case is the one most relied on by him, and yet we have seen the judges treated Neilson's apparatus as *a machine* for conveying heated air to the furnace, and sustained his patent upon that view.

The American cases, except two of which I shall presently say a word or two, harmonize with the English. I need only refer to *Whittemore* v. *Cutter*, 1 *Gall*, 478, 480; *Stone* v. *Sprague*, 1 *Story*, 270, 272; *and Wyeth* v. *Stone*, 1 *Story*, 285; *and Smith* v. *Downing*, of which a pamphlet report is handed to this Court.

In the first of these cases, Story, J. said "A patent can, in no case, be for an effect only, but for an effect produced in a given manner or by a particular operation."

In *Stone* v. *Sprague*, the same learned Judge, after stating the construction given by the Court to the patent, said, "We hold this opinion the more readily, because we are of opinion that if it be construed *to include all modes* of communicating motion from the reel to the yard beam, and of the connection of the one to the other generally, it is utterly void, as being *an attempt to maintain a patent for an abstract principle, or for all possible or probable modes* whatever of communication, though they may be invented by others and *substantially differ from the mode described by the plaintiff in his specification.*"

In *Wyeth* v. *Stone*, it was held also, by Mr. Justice Story, that the inventor of *one mode* of cutting ice by power other than human, could not take out a patent for the art of cutting ice generally by other than human power.

In *Smith* v. *Downing*, which was a case upon the very patent of Morse, now under consideration—a suit, by an assignee of Morse's patent, against assignees of House's patent for the printing telegraph. Mr. Justice Woodbury reviewed the authorities, and thus stated his conclusions: "What is to be protected is not an abstract or isolated principle, but *the embodiment of a principle into a machine or manufacture* as described in the specification; and it is the invention in conformity to that embodiment or representation of its working, which the act of Congress will protect." Again, "The impropriety of claiming a patent for the invention or discovery of a new principle, however important it may be *per se*, rests on the idea

that the exclusive use of the invention for a term of years is given to the patentee, to reward his genius and expense in making the invention and pointing out in his specification, how it can be used beneficially, and the machine easily made by any mechanic, for general employment. The patent is, in such case and *must be in order to possess validity, not for the principle, but for the mode, machine or manufacture to carry out the principle*, and reduce it to practice. In short, the principle thus becomes the *modus operandi*, and rests on the new mode adopted to accomplish certain results. And though some *expressions* have been used by one or two Judges, which *look like* a sanction to patenting a principle, yet they are *used in the above sense* of a principle in operation in the manner set out in the specification, or are used *too loosely* from haste or inadvertence."

I have already said that Mr. Justice Woodbury reduced, by construction, Morse's claims to the simple "use of the motive power of the electric or galvanic current, in the form of his application according to his machinery, and in the modes he had described:" without this limitation, the judge said, "his renewed patent of 1848, must be regarded as void for claiming too much, and for wishing to protect a mere principle or effect, '*however developed*,' and without reference to any method described by him, and to cover a principle, also, before known."

Against all this current of authority, there stand two decisions of Judge Kane, of the District Court for the district of Pennsylvania—a learned and much respected judge, certainly, but unable, I apprehend, to overthrow a rule of law so well settled as that which I have been endeavoring to set clearly before the court. The two decisions referred to, are those of *Parker* v. *Hichre*, and *French* v. *Rogers*. In the last of these cases, which was a suit for an infringement of Morse's patent by the use of Bain's telegraph, patented in England in 1846, and in the United States in 1849, Judge Kane broadly affirmed that Morse, in each of his claims, asserted his title to "no more then he was justly entitled to claim. He *declared* the existence of a NEW ART, asserted his right in it as ITS INVENTOR AND OWNER, and announcing fully its nature and elements, claimed, in re-

turn, the contracted protection of the laws." It was a legitimate result of this broad doctrine, to hold, as the learned judge did hold, that the use of Bain's patent, which operated by the mere chemical effects of the transmission of the electric current through prepared paper, without the use of electro-magnetism, and without the use of the recording apparatus—having, indeed, nothing in common with Morse, except the production of visible marks, and the same general purpose to use those marks as representatives of letters and words, for the communication of intelligence—nothing in common, to use other language, except mere effect and object—was an infringement of Morse's patent. In this the learned judge certainly did no more than carry out his principle, which amounts to this: that Morse was THE PROPRIETOR OF THE ELECTRIC CURRENT for telegraphic purposes, and that without discovering any new principle whatever.

I must be allowed to prefer, and I trust this court will prefer, the sober and well sustained conclusions of Judge Woodbury, to such a doctrine, leading to such conclusions. Even if one who has been engaged in investigations into the principles of science or the laws of nature, and has discovered an elementary principle, could monopolise the application of it, (which I deny), by showing one practical mode of embodying such principle; the question arises, what principle has Mr. Morse discovered? It occurred to him that the motion which previous discoverers and inventors had been able to produce by means of electro-magnetism, might be made to mark dots and horizontal lines. A simple contrivance sufficed for this. Could he thereupon take out a patent for the general idea so as to include all sorts of contrivances for marking, and all kinds of marks which could be understood as representatives of letters? Certainly not. And *a fortiori* he could not by his claim cover contrivances for printing letters themselves.

I trust that I may now leave the proposition, *that no patent can be sustained for an art or principle or mere effect, but only for the material embodiment, or the devised method or process of application of the art or principle.*

I now beg the attention of the court to the first and fundamental proposition, already stated, especially as bearing on the eighth of these claims. It is, in substance, this :—

Where a patent claims AN EFFECT WHICH CANNOT BE PRODUCED *by the invention as described in the specification, it is void.*

In *Crossley* v. *Beverly*, *Web. Pat. Cases*, 109, Brougham accurately states the law in this respect thus: "The patentee undertakes to guarantee to the community the use of all that he claims as his invention. If he sets fourth five different things, and four of them be such as merit the highest panegyric, and are of the greatest benefit to society, and if the fifth be ever so trifling a part of the invention, but fail in either of the following ways; though the invention be truly described as to the other four, the patent is void as to these four as much as it is to the fifth."

I ask the particular attention of the court to the case of *Felton* v. *Greaves*, cited in a note *Web. Pat. Cases*, 42, and reported in full, 3 *Carr & Pa.* 611. In that case the patent was for a "machine for sharpening knives, *scissors and razors.*' The method or machine described in the specification was found to be applicable to knives only, and the patent was adjudged void. This case is directly and completely in point.

The doctrine is thus stated by Lord Eldon, in *Hill* v. *Thompson*, *Web. Pat. Cases*, 237: "I am compelled to add that if a patentee seeks by his specification any more than he is strictly entitled to, his patent is thereby rendered ineffectual, even to the extent to which he otherwise would be fairly entitled."

I refer, also, to *Wyeth* v. *Stone*, 1 *Story* 285, and *Smith* v. *Downing*. In the latter case Judge Woodbury said, "The avoidance of patents for claiming too much, is of frequent occurrence, and needs no explanation as to the reasons for it, when an applicant is so improvident or unjust to others as to claim for himself more than he invented, and the credit or profit of which belongs to others rather than himself."

Let Morse's claims be tested by these legal rules.

And, first, let me ask—Is the claim set up in the first clause of the summary, one that can be sustained? I have shown what he invented and what he did not invent. I have analyzed

this first claim, and found it to assert Morse's exclusive right to the use of the motive power of magnetism developed by certain known means, to operate any machinery whatever for imprinting signals or producing sounds for telegraphic purposes. This is nothing more nor less than a claim for the whole art of telegraphing by imprinted signals or produced sounds. Having invented one mode of exercising the art, he claims, not his invented mode, but the whole art. He attempts the very thing which all the English and all the American Judges, except Judge Kane, say cannot be done.

What is the end aimed at by Morse? Clearly to imprint signals and produce sounds at a distance. What means does he propose to employ? The known motive power of electro-magnetism in connection with certain machinery devised and combined by him for marking signs, and making sounds. What then is the spirit or principle of *his invention?* The combination of the electro-magnet and its armature, lever and pen point, with his specified machinery, moving paper so as to receive impressions, and with an apparatus for ringing an alarm bell. This is the essence of his invention. No man, by any changes of form or substitution of equivalents, can deprive him of that. Neither can he, having invented this combination, appropriate to himself the end as well as the means, and secure to himself a monopoly of the art of telegraphing by signals or sounds, no matter by what combination of machinery or mechanical means, with the electro-magnet. As well might the first applier of steam-power to the manufacture of cottons have claimed for himself the use of steam-power by whatever machinery not only for the manufacture of cottons—a claim sufficiently absurd, but for the manufacture of every description of goods used for clothing. The largest of these claims would hardly have been a bolder generalization than this claim of Morse.

I pray the attention of the Court to what Morse calls "*the first principal part of his invention.*" Look at the elements of this "first principal part." What are they? A battery or any known generator of galvanism; a circuit composed of any known conductors; a port rule and signal lever or other con-

trivance for closing and breaking the circuit, and an electro-magnet. Every one of these elements was well known, except the port rule and signal lever which turned out to be useless, and for which the old simple key of Ampere has been substituted. But it may be said that these elements separately do not constitute the "first principal part." True; but the combination of these elements, so as to develope the motive power of electro-magnetism, does; and it so happens that this combination is as well known and almost as old as the electro-magnet itself. Now, if this combined apparatus, paraded as the first principal part of Morse's invention in the body of his specification, were separately claimed in the summary, the claim would be incontestibly bad. The combination of this apparatus with any machinery not devised by Morse, would furnish no better ground of claim except for the *mere* combination; and no claim for a combination can be good where the elements of it are not specified. Now, in this first claim of Morse only those elements are specified which are included in "the first principal part," and these are old; the other element, namely, the machinery to be operated by the electro-magnetism, is not specified at all. The claim is for all machinery which may be used to imprint signals or produce sounds. This machinery is altogether potential. It is not in being, and of course neither is nor can be described or specified. It comes then to this, that the claim is for the combination of a known motive power with machinery, neither specified nor capable of being specified.

Can any thing be clearer than that this claim is bad?

I proceed to the consideration of the fifth claim of the summary. Here we find a distinct claim for the system of signs, consisting of dots and spaces, and dots, spaces and horizontal lines, by itself and independently of combination. In other words, Morse here claims that he invented a system of signs, substantially as set forth and illustrated in his specification, and that no other person has a right to use this system for telegraphic purposes. In the sixth clause of the summary he claims this system, "in combination with machinery:" and,

if this means *in combination with his specified machinery*, the claim may be good enough. But in this fifth claim, the claim is made to the system itself and by itself.

I submit that this claim cannot be supported. Look at the account given of these dots and lines in the body of the specification. "My system of characters," says Mr. Morse, (1) "consists of dots, spaces and lines variously combined to form letters and other characters, a specimen of which is represented in examples 1, 2 and 3.

These dots, lines and spaces, it is obvious, are the mere effects of opening and closing the circuit. Press down the operating key, and thus close the circuit, and instantly the soft iron bar, whether straight or U shaped, within the coil, instantly becomes a magnet, and attracts its armature, to which one end of a lever is attached: the other end of course moves in the opposite direction and carrying a pen point, impinges on the paper moving before it, and makes a dot: now remove the pressure from the key, and it is immediately retracted by a spring and the circuit is broken. The armature of the magnet, instantly released, is also retracted by a spring, and the pen point is thus withdrawn from the paper, which continues to move, and thus a space is produced. Press the key down again and continue the pressure a little longer than before, and you have a line.

It is, perhaps, worth notice that in the specification no useful mode of opening and closing the circuit so as to produce these dots and lines, is described. The mode specified of the signal, lever and port rule has been long abandoned as inconvenient and useless, and the mode actually adopted, as above set forth, is barely alluded to.

There can be no patent for known effects by new modes; but only for new modes of producing known effects. What are these dots and lines but known effects? Dots and lines are as old as marking; and the use of dots and lines to represent ideas is not new. My learned friend (Mr. Campbell) was pleased to indicate the system of dots and lines devised by Dr. Swain

(1) Record, 77.

as a philanthropic contrivance to enable convicts to hold intercourse. The testimony is, that it was devised by Dr. Swain for the use and amusement of himself and his friends. But this is immaterial. The existence of the system, for whatever purpose devised, proves that the representation of letters, etc., by dots and lines was not new. But it is said that the use of dots and lines in telegraphing is new. This is true. The motive power of electro-magnetism—the only power yet known by which mechanical effects at a distance can be produced, was first applied by Morse, so *far as the evidence in the record shows*, to mark dots and lines; and these dots and lines are capable, as are all visible marks, of being used as the conventional representatives of language. But these marks are not the less mere effects; though they had not been before produced by electro-magnetism at a distance, and, of course, had not before been used for telegraphic purposes. It is clear I apprehend, that Morse cannot have a monopoly of these effects, the simplest and most elementary effects of the action of electro-magnetic machinery, operated from a distance by means of the electric current. He could not have a patent for marks generally produced by electro-magnetism, nor for marks used as symbols of language; for everybody knew that all marks could be so used. Much less could he have a patent for marks used as symbols of language, produced without the use of any electro-magnet and by a process entirely distinct from his. He could have a patent for his system of signs—that is to say for his methodical arrangement of dots and lines so as to form an alphabet, in combination with his machinery or means of producing them. They are so claimed in the sixth clause of the summary, and I do not deny the validity of that claim. What I do deny is the patentability of a system of signs, abstractedly from the machinery or process by which the effects, used, assigns, are wrought. Such a system may, indeed, be described in language; but it can exist only in idea. It has nothing mechanical or material about it. For the description of it a copyright might be had; but it cannot, in my judgment, be the subject of a patent. Such a patent would create a most odious monopoly, and cut off all improvement by making it unlawful for others to use any arrangement of marks, however produced

and by whatever mechanical means, as symbols of language or ideas, for the purpose of communicating intelligence at a distance. It would be more than a patent for effects; it would be a patent for ideas of effects.

I come now to the eighth claim, I have already said that this is the most remarkable claim of all. It is so. The first claim is to an exclusive right to all machinery worked by electro-magnetism, for imprinting marks or signals: the fifth seeks to appropriate all marks capable of being used as symbols at a distance, by whatever means made; but in the eighth claim he limits himself to no machinery, and to no marks or system of marks. It is a sweeping and comprehensive claim to the use of the motive power of the electric current, however developed, for marking or printing characters, signs, or letters, at any distances, far or near.

In one respect, however, this claim is more modest than the fifth. In this claim the patentee does limit himself to the use of the *motive power* of the current:—while in the fifth, he claims the effects of its application, whether produced by the same or any other agency.

But if the fifth claim is broader in one direction than the eighth, in another the eighth is broader than the fifth. The fifth is restricted to simple *marks* or "dots and lines:"—the eight comprehends "*letters*" also.

Let me ask the Court to consider the extent of this claim.

What is included under the phrase, "motive power of the electric current," however developed? Scientific writers, indeed, one of the learned counsel (Mr. Harding) have told us that the magnetism developed in the soft iron bar of the electro-magnet is not the only motive power of the electric current. Even Morse himself, has described this power as used to deflect needles prior to his invention: and the *evidence before the Court* in this cause shows that Steinheil used these deflections to make marks before Morse first filed his caveat:—though, it must be confessed, as I have often admitted, that this evidence does not show that Steinheil's application of the needle

to this use, preceded in time Morse's application of the armature of the magnet to the same use. Morse's invention included the electro-magnet, as a means of working his marking apparatus : Steinheil employed electro-magnetism in a different way for his marking apparatus. Now in the eighth clause under his general description, Morse claims Steinheil's method as well as his own.

But there are other modes, yet more absolutely distinct from Morse's, in which the motive power of the electric current can be employed to imprint characters or letters at a distance. Of these modes, some are not included under the general description of methods of using electro-magnetism, though they are modes of using the motive power of the electric current, and therefore come under Morse's description of what he "*calls electro-magnetism.*" Axial magnetism, spoken of by Mr. Justice Woodbury, as used in House's printing telegraph, is one of these. There may be still other undiscovered modes of using the electric current as a motive power : all these, discovered and undiscovered, Morse claims in this sweeping clause.

But Morse does not stop here. He does not claim this motive power for imprinting signals or producing sounds, as in the first clause, but for marking or printing *characters, signs* OR *letters.*

Thus, this eighth claim, in its two branches, covers the whole art of telegraphing,—the whole power, and all possible applications of the power, by marking or printing. If this claim can be sustained, there can be no improvement during the existence of the patent. Morse claims the art—and this claim includes all improvements. Such a patent, founded on a particular application of a known motive power, through certain devised machinery, to the production of particular effects, cannot be sustained. Mr. Justice Woodbury well states the consequences of the opposite doctrine. "Such a doctrine" he says in *Smith* v. *Downing*, "would discourage progress, rather than encourage useful arts, as the constitution wishes to be done by granting patents. It would after one invention, as to the same subject, or same principle or art, halt and bar all further advances on the same subject. It would petrify everything as it stood,

to the great loss of mankind, and in derogation of both public and private rights to advance human improvements and human power. It would also, render the first improver a monopolist, and exclude the exercise or reward of further genius, science and labor, in the same line, however useful, and however much needed beyond what has been already accomplished."

In another part of the same opinion, the distinguished judge says: "No lawyer, conversant with the patent system, could for a moment suppose, that because Arkwright first invented and perfected the art of spinning by machinery, he could have taken out a patent generally, and covered and monopolized all kinds of future and different improvements in that art. On the contrary he could shield no mode of the art, but that which he had devised, used, and described. So, it has been held that a patent for cutting ice by human power, does not cover any mode but that described."

"So, though Woodworth first invented planing boards by machinery, he could not take out a patent for that art, principle, or system generally, and thus either prevent or monopolize future improvements when differing substantially from his machine. But the whole effort of Woodworth's assignees, has been to describe his particular mode of planing, so as not to omit anything material or to cover too much; and no attempt is made to protect anything connected with planing by machinery, except the mode thus described, or what is substantially the same."

In his patent, as we have seen, Mr. Morse claimed only his invented mode of telegraphing. Subsequently others have become interested in his patent, whose aim naturally is to exclude all competition. It is, perhaps, under the advice of these associates that he has so extended his claims as to embrace the whole art of telegraphing by imprinting. But certainly he claims too much; and a patent which claims too much cannot be supported.

There is another objection to this eighth claim, which, if less imposing, is not less decisive. In claiming the use of the motive power of the electric current to PRINT LETTERS, he has shown no mode in his specification of doing this. There is nothing in his description from which any one could conceive

that he even thought the printing of letters possible. Certainly, he had invented no mode of printing letters. "The inventor is not to be protected" says Judge Woodbury, in the case so often cited, "unless he describes fully and plainly what he has done, so that the public may copy or imitate, and use it after his term expires." And again:—"What he does not describe, and certainly what in the misty future he cannot describe, he must be presumed not to have invented."

The case of *Felton* v. *Greaves*, 3 *Carr. & Pa.* 611, also already cited, is in point, if further authority be needed for this position.

And there is no decision opposed to this doctrine. The point did not arise before Judge Woodbury or Judge Kane. The copies of the patent before these judges, were incorrect in the respect I have already mentioned. The claim as set forth in those copies was confined to the production of "characters, signs *of* letters" instead of character, signs *or* letters," the words actually used in the patent. Of course upon the patent as thus printed this question could not arise; for no one denies that Morse invented a mode of imprinting characters, that is dots and lines or signs or representatives of letters. For that, he was entitled to a patent. But he never invented, and has not described, any mode of printing letters; and yet his patent extends to every mode of printing letters. It would be impossible to make letters by the process invented and described by Morse. Machinery to produce that effect must be as different from his, as that of a steam-engine from that of a watch.

There can be no possible answer to this objection to the patent, except the assertion that the eighth clause merely claims the effect which the described invention could produce, and that the word "letters" is the mere synonym of "characters" or "signs;" the mere synonym, in other words of "dots and lines." I submit, however, that this cannot be the true construction of the clause. If the intention had been to confine the claim to the mere marking of representations of letters, appropriate language could have been easily found. But the intention was obviously otherwise. The first claim is for marking "signals;" the third is for the "system of signs;" the eighth for marking

or printing characters, signs, or letters. The intention obviously is to claim everything which can be effected by the use of the motive power in the communication of intelligence by any recording apparatus, whatever the manner or subject of the record. Mr. Morse, or his advisers, evidently supposed that he, having invented a method of making visible and permanent impressions by means of electro-magnetism, was entitled to a patent for every mode of using the motive power of the electric current, no matter whether developed in the mode known to and used by Morse or any other, to make visible and permanent impressions, by whatever machinery, and of whatever description. It is true that his counsel, Messrs. Campbell and Harding, in their brief, now confine the claim to "telegraphic *signs*," (brief, p. 8,) and that Mr. Gifford's argument is inconsistent with the claim even to that extent. It is true, also, that Judge Woodbury, in tenderness to the patentee, reduced the claims within legal limits; but he would hardly have adopted this limited construction, had a correct copy of the patent been before him. The only legitimate object of construction is to ascertain the meaning of the persons using the language. In this case there is no doubt as to that.

To me the conclusion seems irresistible from the arguments I have now submitted, that the first, fifth and eighth claims of the patent of 1840, as re-issued in 1848, are void, because they claim too much; because they claim a principle or art generally; because they claim effects, independently of the machinery producing them; because they claim results or operations which cannot be accomplished by the machinery specified, or any similar machinery.

It is proper to observe, here, that the legal principles which condemn these three claims, touch nothing which Morse actually invented, or for which he originally sought the protection of a patent. The essence of his invention, as described in the first specification of the patent of 1840, was the combination of the electro-magnet, operated by means of the electric current, with the armature of the magnet and its lever and pen point, and with the apparatus for moving the paper so as to receive

impressions from the pen point, when moved by the magnet. This invention was protected by the patent of 1840, as originally issued; and the claims of 1848, so far as they are confined to this invention, are not disputed. And further, the combination of the whole apparatus with Morse's system of signs, gives him the exclusive right to the use of his system in his devised mode. And, further yet, the claim to the combined circuit is not disputed, except upon the ground of prior invention and use. We admit cheerfully the doctrine of Judge Woodbury, with respect to these claims: "It would amount to an infringement of such an invention as Morse's, or the patent of it, to adopt his mode of acting, operating, etc., or merely to change it by substituting some mechanical equivalent in a part of it, or altering only the form and proportion so as not materially to affect results, or making any change merely evasive, colorable, and not substantial and considerable in its character." We repeat that we have no desire whatever to deprive Mr. Morse of anything he has invented. We do not dispute his right to anything covered by his original patent, except the combined circuit. We contest only those claims which have been advanced for the purpose of setting up a monopoly in telegraphing, not thought of when the original patent was obtained. The rules for which we contend afford ample protection to Morse, while they protect the public against an absurd and odious monopoly.

I proceed to consider briefly the effect of rejecting the first, fifth and eighth claims, or either of them, upon the patent, and upon the pending suit.

It will not be denied, that, as the law stood prior to 1837, the excessive claims in these three clauses of the summary would avoid the patent altogether. It is true, there might be a surrender of a patent defectively specified, and a re-issue for so much as was truly the invention of the patentee,* but proof of excess of claim was a complete defense to any suit for injunction or infringement, founded on the patent vitiated by it. No disclaimer filed during the pending of any suit could affect such suit.†

* Act 1836, Sec. 13. † Act 1847, Sec 7.

It has been supposed by some, that the ninth section of the act of 1837 authorizes suits without any disclaimer, upon patents otherwise invalid for excess of claim. But it has been held by Mr. Justice Story, in *Wyeth* v. *Stone*, 1 *Story*, 194, that "the disclaimers in the ninth section (of the act of 1837) apply solely to suits brought after the disclaimer is filed;" and on the next page he further remarks, that "whatever might be the right or remedy at law," under this section, "a Court of Equity ought not to interfere to grant a perpetual injunction, unless a disclaimer has been in fact filed at the patent office before the suit is brought."

This ninth section is certainly very loosely and confusedly worded. It admits of two constructions: either 1st., that a patentee who has claimed, through mistake, accident, or inadvertence, and without design to defraud or mislead, more than he has invented or can lawfully claim, may nevertheless maintain a suit in law or equity for any infringement of such part of the invention as is truly his own,—such part being substantial and material, and definitely distinguishable from what was claimed without rights—without filing any disclaimer; or secondly, that such suit may be maintained after filing a disclaimer. Taking the seventh and ninth sections together, and it would seem that a disclaimer should be filed before suit. At all events, it seems certain that a suit brought without a disclaimer, can only be maintained specially for an infringement of *the part* of the invention justly claimed. It cannot be a suit on the patent at large, with a right to recover if any part of the matter patented shall turn out to be the invention of the patentee. If this were so no disclaimers would ever be made.

But could the complainants in the present suit avail themselves of this section, even if, in a proper case, a suit might be maintained upon all the claims in the patent, and a recovery had on the good claims only? Can it be said that Morse has by mistake, accident, or inadvertence, inserted these three claims? The original patent was issued in 1840; these claims were not set up till 1848, when upon the second surrender the third patent was issued embracing them. And can the claim of the whole art of telegraphing by imprinting be definitely distinguished from the valid claims? If either of these ques-

tions must be negatively answered, this section cannot, as it surely should not, avail the complainants in this cause.

Moreover, the law did not authorize the re-issued patent to include claims not made in the original patent. It follows that the re-issued patent is void; and as the suit is brought upon that patent and not upon the original patent of 1840, the decree of the Court below should be reversed. This question has been so fully argued by my colleague, that I do not deem it necessary to examine the statute and the authorities in detail.

I have thus far considered claims of this patent in respect to extent, let me now ask the attention of the court to its claims in respect to duration.

On the 18th of August, 1838, Morse obtained a patent for his telegraph in France. On the 20th June, 1840, he obtained a patent for the same invention here.

He first applied for a patent here on the 9th April, 1838. The bill of complaint is silent in respect to this application, * and the deposition of Page; and the letter of Ellsworth, which mentions it, states nothing in respect to its contents. † The answer denies that this application was for the patent which was actually issued. ‡ On the 13th May, 1838, Morse requested the commissioner of patents to delay issuing the letters patent until after advices from him in Europe, whither he was to sail the next day. § Nothing more was done for two years: when Morse again applied for his patent, and a correspondence took place between him and the commissioner. Upon the suggestions of the latter, the specifications were withdrawn for amendment, and underwent various alterations; a fresh oath was taken; and the corrected specification returned to the office; when the patent was issued.

These facts warrant us in saying that the true date of the application upon which the patent was issued, was not earlier than May 2, 1840: and it is manifest that any other ruling would open the door to great frauds.

If we are right in this, it cannot be denied that the American patent should be limited to fourteen years from the 18th

* Record, 3. † Record, 100, 127. ‡ Record, 23. § Record, 98

of August, 1840, the date of the French patent, whereas, in fact, it grants an exclusive privilege from the 20th June, 1840.

But it may seem proper to the court to hold that an application, once filed, can be suspended, while the applicant goes abroad, ascertains the results of foreign skill and invention, and obtains a foreign patent, renewed after his return, with an amended or altered specification, and yet be treated as filed, in its final shape, at the date of the original filing.

Upon this hypothesis, how stands the law?

The seventh section of the act of 1836, prohibits the issuing of a patent to any person where it appears that the invention "had been patented in any foreign country prior to the application."

A proviso in the eighth section of the same act, allows the original and true inventor to take out a patent in this country notwithstanding he may have obtained a foreign patent, "at any time *within six months* next preceding the filing of his specification and drawings."

The sixth section of the act of 1839 removes this restriction of six months, and allows any inventor to take out a patent here, although his invention "may have been patented in a foreign country *more than six months* prior to his application" with this proviso "that *in all cases* every such patent shall be limited to the term of fourteen years from the date or publication of such foreign letters patent."

Our learned opponents insist that this proviso shall be confined to patents applied for here more than six months *after* the date of the foreign letters patent; that Morse's patent was applied for before the date of his foreign patent; and that consequently the limitation of term does not apply to him.

We insist on the contrary, that all the provisions respecting patents issued here after patents issued abroad, are to be taken together; and that, taken together, they constitute a general uniform provision, that no person shall be debarred from obtaining a patent in this country by reason of having obtained a prior foreign patent, but that in all such cases the American patent shall be limited to fourteen years from the date of the foreign patent.

This construction is commended by the uniformity of the

rule it establishes, and its manifest accordance with the intention of the legislature. I see nothing to recommend the construction of our opponents, except that it will screen Morse's patent from the rule. But this will be accomplished at the expense of a mere technical construction, establishing differing rules in respect to patents granted here after similar grants abroad.

That I am right as to the intent of Congress, is manifest upon a comparison of the proviso in the act of 1839, with the proviso in the act of 1836. The language of the former proviso is taken from the language of the latter. The latter speaks of "letters taken out and published in a foreign country." The former speaks of the "date and publication of the foreign letters patent,"—thus showing that the legislature had in mind not the antecedent clause in the same section only, but the prior provision of 1836.

It seems to me quite clear, then, that Morse was only entitled to a patent for fourteen years from the 18th August, 1838. In granting to him a patent for fourteen years from 20th June, 1840, the Commissioner exceeded his power. The patent is consequently invalid. It might, no doubt, at any time during its legal term have been surrendered and reissued, properly limited in respect to time; but as it has been suffered to stand, it cannot be sustained.

I now proceed to the consideration of the patent of 1846 reissued in 1848.

And the first observation which occurs, is that this patent professes to be for an improvement of the telegraph invented in 1840; and the question is irresistibly suggested: how can Mr. Morse have a patent for an improvement, when he already claims to have a patent for the art in all its branches, and in every development? If he has that, he already has a patent for all possible improvements.

But not admitting that the patent of 1840 is for an art in the abstract, I do not urge this objection to the patent of 1846.

There is a much more serious objection. It is that the claim for the local circuit in the patent of 1846, is substantially the same as the claim for the combined circuit in the patent of 1840. Compare the description of the combined circuit in the

original patent of 1840* with the claim of the local circuit in the patent of 1846 re-issued in 1848.†

The first, or combined circuit, is described as an original circuit having within it, at any convenient point, an electro-magnet with an armature upon a lever so arranged as to close and break a second circuit, with an independent battery, instead of operating a marking instrument. In this second circuit there is a similar arrangement for closing and breaking a third circuit with its independent battery; and so on indefinitely; and in each of these circuits, besides the receiving magnet employed to close and break the next, there were placed as many other magnets to work registers as occasion required. The operator at the transmitting station, pressing his key, would close the first circuit; when the receiving magnets and register magnets would instantly act upon their armatures, and thus close the next circuit and also operate the registers in that circuit: the next circuit, being thus closed, the same operations would be repeated in the next, and so on indefinitely.

The second or local circuit, as described in the patent of 1846, is precisely similar to the combined circuit, with this difference only, that the receiving magnets are all placed in one circuit, instead of a number of successive circuits: but their function is the same, to close and open second circuits within which are register magnets performing precisely the same functions as the register magnets in the combined circuits.

What difference of principle is here? In both, the operation is the same and the end the same. In both, we have receiving magnets and register magnets. In both, the operation of the receiving magnet is to close and break the next circuit. In both, the operation of the register magnet is to work the marking apparatus.

One of the counsel for the appellees endeavored to distinguish them by three circumstances of difference:—1. That by the combined circuit pulsations could be transmitted only one way; while by the main and local circuit they could be transmitted either way. 2. That by an adjustable spring the armature of the magnet is drawn back when the circuit is

* Record 62: † Record 87.

broken. 3. That by adjusting screws the power of the spring is diminished or increased.

But it so happens that all these circumstances meet in the combined circuit as well as in the local circuit.

Pulsations can be transmitted either way by the combined, as well as by the local circuit. All that is necessary is to keep the several circuits connected by a short piece of wire or any other conductor. Then the operator at either end can work the whole with perfect facility, and this was doubtless done before the employment of the local circuit. Accordingly we find on consulting the claims and specifications of the two patents, that Morse himself does not make any such distinction between the local and combined circuits, as his counsel make for him.

As to the adjustable spring and adjusting screws, no claim is made to either of them by Morse by his specification of the patent of 1846, and a glance at the drawing, (example 11, figures 1 and 2), referred to in the specification of the patent of 1840, re-issued 1848, as illustrative of the combined circuits, will enable the Court to perceive the identical spring and screws referred to as distinguishing the local circuits.

I add but a single question; Can it be believed if any man had devised and used the local circuit, that Morse would not have complained of it as an infringement of his patent for the combined circuit? Can any body believe that in such a case Morse would not have claimed the local circuit as identical in principle, and substantially identical in mode of operation with the combined circuit?

I pass, barely mentioning it here, Professor Henry's contrivance for breaking and closing a second circuit, used in 1833 or 1834, which left nothing new in point of principle to be invented by Morse, or any body else, for extending telegraphic circuits.

It is enough for my present purpose to prove that the local circuit of 1846, was embraced under another name in the patent of 1840, to take away all ground for sustaining the sec ond patent.

There remains for me but a single topic; all other matters, not already discussed by me on this occasion, I must submit to the Court upon our brief in the case, and upon the argument of my able and learned associate, (Mr. Gillet).

The single topic remaining for me is the question of infringement. And I will not say to the Court upon the evidence in this case thatthe appellants have not, in some respects, infringed the patent of the appellees. But I will say, that I believe the ingenious gentlemen, who invented in Kentucky the Columbian Telegraph, were far from supposing that, by its use, they infringed the patent of Morse. And I will say farther that in my judgment the Columbian Telegraph is, in some important respects, an improvement upon the Morse Telegraph. Learned, skilled and upright men, wholly uncontradicted and wholly unimpeached, testify that the employment of permanent magnets in the Columbian Telegraph render the instrument much less liable to disturbance by atmospheric electricity; so much less that it can be operated several hours a day upon an average more than Morse's. This is a great, a most valuable improvement.

Nor can the Columbian Telegraph be considered as any infringement of Morse's in any part of its arrangement from the battery to the electro-magnet; for no part of Morse's arrangement, as actually used, has, within their boundaries, any thing new in it.

The infringement commences with the addition of the pen point to the lever affixed to the armature of the magnet and the combination of this lever and pen-point with the registering apparatus. The infringement not only commences, but it ends here, unless Morse is entitled to the combined or local circuits notwithstanding what was done by Professor Henry. If he is so entitled, the infringement extends also to the use of these circuits.

These are the limits of the infringement: but clearly any use of the known battery, the known circuit, the known key, the known electric current, and the known electro-magnet, in their known combination, in any other way than to make signals substantially in the mode adopted by Morse, would have been no infringement. This apparatus might be used to make visible signals without marking; and the impulsion of the armature upon the magnet would necessarily produce sounds. These signals, these sounds might be observed, and thus intelligence imperfectly transmitted. But the decree prohibits

the use of even this apparatus, no part of which nor the combination of which was invented by Morse for making signals or producing sounds. To this extent the decree must be reversed, whether all the claims of Morse be sustained or not.

It is perhaps needless to remark, that the only production of sound claimed by Morse, is through the ringing of an alarm bell in the mode specified by him, or in any substantially identical mode. He specifies no other mode, and could of course, have a patent for no other.

I further submit, that the Court below erred in granting an injunction, as the validity of the patent was questioned, and the novelty of the invention patented, was in many respects denied.

It is not correct to say, that a trial at law is merely required, in order to satisfy the conscience of the Chancellor before he issues an injunction. Such a trial and a final judgment in favor of the plaintiff is required as a condition precedent to the exercise of the Chancellor's jurisdiction, where there are serious objections to the validity of the patent, or where there is a reasonable doubt about the alleged infringement. This is the well established law in England.

I now take my leave of this case. It is one of great interest and expectation. It is one of vast importance to the parties, and in respect to the principles involved, of vast importance also, to the public at large. I commit it cheerfully to the judgment of this Court. Supplying by your learning the omissions of counsel, and by your disciplined judgments, the defects of their arguments, unmoved from established principles of the law by the novelty and wonderful characteristics of the subtle element, the applications of which are the subject of controversy, and only stimulated to more diligence in investigation and carefulness in conclusion by the difficulty of some of the questions involved, you will, I am sure, endeavor to do impartial justice between these parties, by so administering the law as to protect at once the rights of individuals and of the public. In behalf of my clients I ask no more.